REVIEW
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School age is the period of growth and development. The term growth refers to an increase in size because of cell multiplication while the term development refers to an increase in the complexity of function so the child's nutritional needs differ in several important aspects from those of adults. The first of these is the rather large requirement for growth, so the practically every food eaten must carry some protein, minerals and vitamins. Secondly, the activities of children of all ages are proportionately higher so that the daily caloric allowances per unit of body weight must be increased. Thirdly, the selection of foods often requires some modification, especially for young children.

Shrestha and Co-workers (1994) showed that 3.7 per cent children had severe Fe deficiency anaemia in Fiji.

Bakhetia et al. (1994) have observed in a study conducted on one hundred subjects of 10-12 years age group of different socio-economic groups. The food consumed by the subjects was determined by using 24 hours recall-cum-weighment method for three consecutive days. From the actual food consumed, nutrients were calculated using “MSU Nutri guide” software. The average daily intake of all the foods except milk and milk products and other vegetables were inadequate as compared to the least cost balanced diet. The average ± S.E. of daily intake of energy was 1818 ± 65.6 Kcal. Protein 59 ± 2.1 g, fat 59 ± 3.8 g, vitamin A 257 ± 21.8 µg, thiamine 1.9 ± 0.05 mg, riboflavin 1.0 ± 0.04 mg, niacin 14.0 ± 0.45 mg,
folacín 224 ± 12.6 µg, vitamin C 102 ± 5.6 mg, calcium 809 ± 47.5 mg, phosphorus 1454 ± 46.6 mg and iron 35 ± 1.6 mg. The consumption of cereals was significantly higher in lower income group (LIG) as compared to middle income group (MIG) while the intake of fruits and milk and milk products was significantly higher in the subjects of higher income group (HIG) than MIG, the intake of all nutrients excepts iron was significantly higher by the subjects of HIG than that of MIG and LIG. It can be LIG must be increased to meet their daily needs.

Amar et al. (1995) have reported the nutrient intake of northern Ghana community children were generally lower than recommended allowances.

Sall and Co-workers (1995) analysed the ascorbic acid content in the hospitalized Dakar children. Their ascorbic acid content of hospital food was found to be too low and it is concluded that the situation could be controlled by the addition of locally obtainable fruits to the meals.

Agrawal et al. (1995) found that the mental abilities of the under nourished boys were lower than normal nourished.

Amigo and Bustor (1995) concluded the growth retardation in school age children is due to the low socio-economic level, heredity especially father’s stature and adverse environmental factors, under nutrition being the main contribution.

Saeworndo (1995) revealed that 80 children were suffered from iron deficiency.

Hendricks and co-workers (1995) analysed the malnutrition in 268 children and found the prevalence of severe PEM (weight for height), 1.3
per cent, moderate PEM 5.8 per cent, mild 17.4 per cent and none 75.5 per cent.

**Mercado et al. (1995)** evaluated the nutritional status of children at a day care centre, run by urban social centre. It is concluded that low figure for the malnutrition in an area where they are usually high is the result of health system, day care and food provided at the Day Care Centre.

**Sharma and Mukherji (1995)** in India, studied about the nutritional status of tribal children aged 1-10 years. Weight for height ratio suggested that 81.5 per cent children were malnourished, mid arm and head circumference ratio suggested 71.2 per cent children were malnourished. Clinical symptoms were suggested that they were also suffer from vitamin A, ascorbic acid, riboflavin, niacin and iron deficiency.

**Bellu et al. (1996)** analysed the nutrient intake of 35072 Italian school children. Their diet was rich in protein lipid but fibre and Ca intake were generally low.

**Swapro and Co-workers (1996)** reported that the nutrient intake of 941 girls, was lower than the RDA. It was concluded that to improve the dietary intake of girls so that their energy, protein, vitamin and minerals are met.

**Ruxton and Co-workers (1996)** the fat intake of 136 children was high but the starch intake was low.

**Misra and Co-workers (1996)** analysed their neurological abilities and concluded that the neurological examination were normal and all were right handed.
Rao and Busi (1996) examined the general growth patterns. Analysis of data related that all dimensions attain an adolescent growth spurt between 12 and 14 years of age.

Pandey and Chakraborty (1996) analysed 200 Indian children. Most of children were malnourished and showed signs of vitamin A deficiency.

Musaiger et al. (1996) reported that the prevalence of anaemia has been declined between 1981-95 in UAE children.

Singh and Co-workers (1996) in the assessment of nutritional status of salt works children in Rajasthan, India reported that the growth retardation was found in the children.

Chevalier and Co-workers (1996) found that the malnourished children showed normal anthropometrics values after four weeks of rehabilitation.

Mayanda et al. (1996) have studied about the late development of Kwashiorkar in 4-15 years old children. All the children were related to poor families.

Khan and Basear (1996) in Pakistan reported that a single vitamin A supplement improved the haematoeit in 6 weeks.

Shahnaz and Co-workers (1996) assessed the nutritional adequacy of 118 boys aged 6-12 years in orphanzes and it was concluded that by inclusion of seasonal vegetables and low cost nutritious items the nutrient intake of the children could be improved.
Reddy (1996) says family income, total land holding, occupation of the parents, family size, literacy rate of the parents and mothers working status affects nutritional status of children. Superstitious and taboos concerning food are powerful social factors which influence nutritional status.

Tunbilek et al. (1996), large families were prone to having malnourished children. This could due to the inability of the mothers to provide adequate care to their young children.

Rao and Vijayraghavan (1996) reported that MUAC might be useful not only in identifying malnutrition but also in determining the mortality risk in children. It has been reported to correlate well with weight, weight for height and clinical signs.


Thimmayammna and Rao (1996) says that the dietary habits of individuals/families/communities vary according to socio-economic factors, regional customs and traditions. Precise information on food consumption patterns of people thought application of appropriate methodology is often needed for assessing the nutritional status of people for elucidating the relationship of nutrients intake.

Papatia and Wend (1997) says that the socio-economic status is defined as a position of the person in a society by his or her education and income.
Devi and Geervani (1997) concluded that the nutritional status and parental care on the control of infections disease and food intake, which are the two major cause of malnutrition among children in developing countries.

Mithcell (1997) adequate protein is essential to support optimal growth in children. For dietary protein to be utilized effectively, sufficient energy must be consumed to make amino acid available for protein synthesis.

Pollitt (1997) concluded that the children with Fe iron deficiency anaemia scored lower on their achievement tests than non-anaemic children, but that other factors may also be involved in school performance.

Liha Lee and Kynng Jung Chang (1997) concluded that the Ca intake of rural Koria children was higher than that of the urban population. Their average daily intake of Ca was 76 per cent of the RDA.

Hardenbergh (1997) surveyed 613 children and concluded that the male dietary intake is similar to, or sometimes less adequate than females dietary intake in different age.

Stanely et al. (1999) anthropometry involves the external measurement of morphological traits of human being.

Nayak et al. (1999) found in a survey of 820 school children that vitamin A deficiency was as significant public health problem with an overall prevalence of pilot’s spot of 7.2 per cent.
Viteri (1999), iron deficiency, effecting about one in every three habitants is the most prevalent cause of anaemia in the world.

Karmarkar and Pandov (1999), presence of goiter in more than 5 per cent of school age children indicate inadequacy of iodine intake and presence of IDD as public health problem.

S. Rokni (2000) says this study evaluated the nutritional status of 212 children, 13-60 months, living in the rural regions of Sirjon country in Iran. A higher proportion of subjects were of lower socio-economic status. Anthropometric measurements analyzed by different criteria revealed that 75.5 – 79.3 per cent of the subjects suffered from mild-severe degrees of under nutrition, dietary evaluation showed that energy protein, vitamin A and C, thiamine, riboflavin, niacin, iron and calcium were deficient in the daily diet of the children. Clinical signs associated with deficient nutrients were observed. Stepwise multiple regression analysis showed that birth interval parasitic infection, and energy were highly correlated with low weight/age. Age and birth interval and parasitic infection were highly correlated with low height/99 g (stunting). Protein intake, mother's education, hygiene and pica behaviour were highly correlated with low energy intake.

Joshi (2000) said minerals are important nutrients. Body needs both micro and macro nutrients. Calcium is necessary for rapid growth of bones and developing teeth. Iron is necessary for formation of hemoglobin.

Smolin and Gosvenor (2000) says that poverty is an important cause of food insecurity and malnutrition, especially among children.
Devi and Geervani (2000) conducted a study at Andhra Pradesh and concluded that the literate women with higher awareness levels were more concern about their family members. They managed and amount that they earned more efficiently so as to make their families secure with food and nutrition.

Olu (2000) showed that preventive care provided to the children is influenced by education level of the mother.

Park (2000) said clinical evidence suggests that immunocompetence is reduced in individual with iron deficiency.

Smolin and Grosvenor (2000) said poor quality diet and increased nutrient needs cause malnutrition even in population with adequate food supply.

Anuradha et al. (2000) reported a significant relationship between cleanliness of hands and diarrhoea morbidity. The use of soap or ash for hand washing before feeding the child reduces hand contamination significantly.

Grover and Pal (2001) said that the changes in nutritional status of rural and urban population in Haryana, an attempt was made based on 20th, 30th and 43rd round for the years 1965-66, 1983-84, and 1988-89 of NSS data. The major sources of calories and other nutrients were cereals, milk and milk products, pulses, sugar and jiggery fats and oils. Urban areas during the year 1965-66 and 1988-89 exhibited relatively more extent of deficiency of all nutrients in comparison to recommended standards. Fat was found to be more deficient in rural areas during 1965-66 and 1988-89 while carbohydrates were found to be deficiently of nutrients have
increased in rural areas and decreased in urban areas. However, the extent of calorie inequality depicted through Gini’s ratio has increased over time among different income groups which was more in rural areas and over time shifted to urban areas. The per capita average supply to food grains in Haryana was found to be above the recommended intake level and the extent of deficiency and inequality is due to unequal to skewed distribution network. Hence to overcome the twin problem of under nutrition and malnutrition an improvement in distribution of food grains is recommended.

Solon (2001) said protein energy malnutrition is a consequence not only of an inadequate food intake but also of poor living conditions, unhygienic environment and lack of child health care.

Rana and Hussain (2001) insufficient food will not only result in under nutrition in term of inadequate weight gain, but will also hinder growth. In a study they found that energy, protein, iron and vitamin A intake was significantly linked with body weight.

Kauser and Praveen (2001) micro-nutrient deficiency of iron, iodine and vitamin A and its associates has hazards as another nutritional problem.

Singh (2004) says that the analysis of dietary survey of the school going boys to 5 villages is seen that they do not consume balanced diet. Their food is deficient in many essential nutrients. They do not consume proper amount of recommended food stuffs. Due to this majority of the school going boys are malnourished and suffer from many deficiency diseases like anaemia, scurvy, ricket, xerophalmia, bitals spot, dry skin etc.
The height and weight is very less compared to normal height and weight of that particular age.

Anwer' I (2004) said a total of 36.1 per cent children were stunted and 45.3 per cent were under weight; 25.2 per cent were below standard weight for height. Among the urban children, 33 per cent were below the standard for height (stunted) and 32.3 per cent were below the standard for weight (under weight); 32.7 per cent were wasted. Of the rural children, 40.9 per cent were stunted, 64.7 per cent were under weight and 33.3 per cent were wasted. The rural female group was the most affected and malnourished with 61.8 per cent stunted and 84 per cent under weight; 67.1 were wasted.

Boeckner Linda (2004) says that the primary reason for increasing fat ness in today's children is lack of physical activity. Today's school aged child spends an average of 26 hours each week watching television. Television watching is time taken away from physical activity.

Physical education in school declines as children proceed through the grade levels. Nearly 100 per cent of fifth graders have a physical education class. The per cent of student engaged in physical education classes drops to 50 per cent during eleventh and twelfth grades. Most school-aged children do not have sufficient physical activity to build cordidiorespiratory fitness.